

ABSTRACT

A screw rotor device has a housing with an inlet port and an outlet port, a male rotor with helical threads, and a female rotor with helical grooves. The helical threads and helical grooves are  
5 designed to eliminate the blow hole leak pathway for multiple-pitch screw rotor devices as well as single-pitch screw rotor devices. The male rotor has a pair of helical threads with a phase-offset aspect, and the female rotor has a corresponding pair of helical grooves. The female rotor counter-rotates with respect to the male rotor and each of the helical grooves respectively intermeshes in phase with each of the helical threads. The phase-offset aspect of the helical threads is formed by  
10 a pair of teeth bounding a toothless sector.